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Original Lectures.

CHRONIC AORTITIS, ATHEROMA AND ARTERIO SCLEROSIS.

A CLINICAL LECTURE DELIVERED IN THE HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF CHICAGO, FEBRUARY 1897, BY B. S ARNULPHY, A. M., M. D., PROFESSOR OF THEORY AND PRACTICE OF MEDICINE.

Having to day the good fortune of being able to present to you two cases of *chronic aortitis*, I will devote the hour to the subject of arterial pathology, and endeavor by the comparison of the cases under observation to draw some clinical, pathological and etiological inferences which may not be without interest.

This chapter of the morbid changes to which the arteries are liable constitutes one of the most remarkable conquests of recent medical research, which the young practitioner cannot well afford to ignore or disregard. There is no truer dictum than this: "A man is as young as his arteries." Degenerated arteries mean health irretrievably lost.

CHRONIC AORTITIS; ATHEROMA.—*Case 19,719.* A. P., æt. fifty three, of Kankakee, Ill., suffers from peculiar attacks of anxiety about the heart which he describes as follows: "It is as if a cold wave was passing over the heart, and then toward the head. Meanwhile my heart feels as if drowned in cold water. I am conscious of everything that is going on during the attack, only I am quite helpless at the time." He has to lean against the wall when the at-

tack comes on, else he would fall. He has fallen several times. He also has pain in the pit of the stomach during the attack. The spells occur every few days, sometimes every day, or twice a day. He served in the army and suffered a sunstroke; he traces the origin of these attacks to that time.

Examination. The first thing that strikes us is the old and worn-out expression of the man. The apex beat of the heart cannot be located by palpation, and a marked enlargement of the area of dullness is easily made out by percussion. Auscultation reveals a very weak first sound, pointing to great loss of ventricular energy; the second sound, especially the aortic recoil, is very weak also. Slight rough systolic murmur over the manubrium sterni. The pulse is in keeping with the cardiac action. The radial artery is hard and tortuous. In spite of the artificial resistance imparted to it by the atheromatous process, the artery is easily compressed and betrays the lack of arterial pressure. The temporals are hard. The pulse is slow, 52 on the average.

Bi-manual pressure over the upper chest elicits a pain over the whole thorax, and an uneasy feeling about the head. Pressure upon the right phrenic nerve above the clavicle calls up exactly the same set of sensations. The seventh cervical vertebra is also very sensitive to pressure; elevation of the sub-clavians.

From the examination it is easy to conclude that the patient suffers from the consequences of generalized atheroma, bearing principally upon the aortic arch. The attacks he describes are peculiar and somewhat unusual; they certainly indicate a circulatory trouble of the coronary arteries, and may be considered as an eccentric form of angina pectoris. The chances are that in the course of time when the atheroma of the coronaries is more advanced, the classical form of angina will supervene and speedily close the drama. I know of no remedial agent better calculated to oppose the inroads of atheroma, and more homœopathic to the condition than plumbum. We will give him the 30x, one tablet every morning, and oxalic acid 3x, 3 times a day with a view to combat the attacks themselves.

[The patient reported a few weeks later; he felt much

better. The attacks have diminished in frequency and severity. Same treatment continued].

CHRONIC AORTITIS AND ARTERIO-SCLEROSIS.—*Case 19,878.* Margaret R., æt. 38 years, is spare of habit, and looks anæmic. She complains of soreness over the chest. Has a cough and when she coughs, pain develops in the left side of the thorax, not a localized pain, however; at the same time a trembling spell comes over her at times, and *the thoracic pain will run down the left arm,* accompanied by a decided feeling of numbness. Concomitant with these sensations there exists *an icy feeling around the heart.*

Occasionally she experiences either a sense of fainting, or even a regular fainting spell; the trembling spells are very frequent, and seize her even when she is sitting quietly. She often feels a fluttering of the heart; epigastric tenderness. The family history is unsatisfactory and indefinite.

Examination. Normal resonance over the chest; the lungs exhibit no particular sign of disease. The heart is somewhat enlarged, the apex beat slightly displaced downward and to the left. Upon auscsultation a roughened systolic murmur is clearly made out over the upper sternal region, evidently due to an abnormal condition of the coats and the internal surface of the arch of the aorta; sensitive phrenic points in the cervical region. The pulse is hard, 65 per minute. The radial arteries are somewhat hard and resistant, but not tortuous, and have none of the small knotty points so common in true atheroma. The temporals are hardly perceptible.

Bi-manual pressure over the upper chest creates a disagreeable feeling in the chest and the head.

This case is very instructive, especially if we put it side by side with the foregoing one. Let us examine first the subjective sensations. We find a remarkable coincidence expressed in that *icy feeling* around the heart, as this woman puts it, and the feeling *as if the heart were drowned in cold water*, as complained of in the first case. This is an important observation, and I draw your attention to it as it would seem to translate into subjective feeling the functional disorder under which the heart labors at the time of those attacks, namely, the state of ventricular anæmia superinduced by the passing wave of vascular spasm

traveling over the arteries. Such, at all events, is my interpretation of the symptom.

Both patients offer to our observation peculiar "spells" which deserve attention. In the first case, the patient falls and remains helpless for a time, while the "cold wave" as we might term it for convenience sake, passes over the heart, but there is no break of consciousness; he is fully aware of everything that transpires during the attack.

In the case of this woman the "cold wave" is accompanied by a trembling of the body, a sense of numbness and a diffused pain over the left side of the thorax, extending down the left arm. Here, however, the scene changes, as there is a marked tendency to fainting, and occasionally actual fainting, which we must take it, hardly would go without impairment of consciousness. We should not forget, however, that this patient is a woman. No matter in what light you may regard this fainting, observe how far we are from those sudden attacks of loss of consciousness, which we encounter in the course of fatty degeneration of the heart, and which not unfrequently prove fatal.

Then again, another point that these two patients have in common is the epigastric pain, though in the case of this woman it is merely expressed as great epigastric tenderness. In the first case, however, it amounts to real epigastric pain and must be viewed as an irritative irradiation reflected from the solar plexus. Let us bear in mind that some attacks of angina pectoris are expressed as intense epigastric pain.

Transferring our attention to the objective signs, we will also find points that both patients have in common, and points of discrepancy. Take the pulse: we have 52 pulsations in the case of the man, 65 in that of the woman.

This rate of 52 pulsations per minute is sufficiently slow to be classed as bradycardia; an imputation that can hardly be laid at this woman's door. Besides, according to her statements, she is subject to spells of fluttering of the heart, and no doubt if we were to count her pulse at

those times, we might find it pretty frequent, leaning toward tachycardia.

It is a fact of common observation that in the course of morbid process known as chronic aortitis, atheroma and and arterio-sclerosis the cardiac rhythm may be so disturbed as to oscillate between marked extremes of slow and rapid rates of pulsation, with a liberal sprinkling of irregularity into the bargain.

Still while this is true, it must be admitted that the worst forms of bradycardia are not found among the sufferers from chronic aortitis or of more generalized forms of arterial disease, but rather as a consequence of more or less acute poisoning of the myocardium from the toxic effects of various infectious diseases, such as diphtheria, typhoid fever, pneumonia and particularly influenza; while tachycardia is best shown as an accompaniment of Graves' disease, in its legitimate as well as in its latent forms.

Consequently it would be misleading to place implicit reliance upon the character of the pulse in the determination of any given case of chronic aortitis. But the study of the pulse, especially of the sphygmographic tracing thereof, together with an accurate observation of the physical characters of the superficial arteries will enable you to tell whether you have to deal with a generalized or circumscribed atheromatous process, or with arterio-sclerosis which is not quite the same thing as atheroma.

In atheroma you find the arteries hard and *tortuous*, and frequently presenting little hard patches, disposed like beads, as it were, along their course, which is not the case in arterio-sclerosis.

We may not unprofitably look for one moment into the morbid anatomy of these two types of arterial trouble, so as to form a clearer idea of their nature, also of their etiology and diagnosis. The whole atheromatous process may be viewed as one of obliterative endarteritis of the terminal twigs of the *vasa vasorum* of the arterial coats. These small vessels are invaded, as it were, by swarms of

insoluble, minute particles which block their lumen; this results in fatty degeneration of the cell elements in the affected area; at the same time, some fibrous proliferation takes place; later on calcareous granules are deposited, which become aggregated into hard plates. Atheroma is not uniformly diffused, but it extends by patches.

Arterio-sclerosis is most probably due to a soluble and diffusible poison, and is therefore widely spread throughout the arterial system. The process is essentially one of fibrosis affecting all the coats of the vessels.

If we now turn to the consideration of the etiological factors, what do we find with regard to atheroma?

Physical overstrain, when long continued, syphilitic infection, all arthritic manifestations, especially gout, chronic malaria, lead poisoning and senility.

As to the etiology of arterio-sclerosis it is less definite, except with reference to syphilis, which is one of the leading causes and generally one of the least suspected. Then we have all errors of metabolism and nutritive changes in the intimate acts of cell life of the system resulting in the production and insufficient elimination of toxic materials capable of exerting an irritative action either directly upon the arteries or upon the vaso-motor centres. We also have alcoholism and the excessive use of tobacco. But, by far the cleanest, most frequent, and most important pathological association of arterio-sclerosis is with chronic renal disease; an association which the young clinician should always bear in mind. Whenever you find evidence of thickened arteries, with an habitually hard pulse, an hypertrophied or dilated heart, an anæmic condition, frequent headache, obscure dyspeptic trouble, attention should be first directed to the urinary functions, and most of the time you will find a history of frequent micturition, especially at night, and if you look further you will discover that the patient discharges a copious pale urine, of low specific gravity, slightly albuminous, sometimes not albuminous at all. Then you have your case cleared up.

Again, with reference to the etiology of some obscure

cases of arterio-sclerosis, when no appreciable renal trouble is present, when no definite arthritic tendency, personal or hereditary, can reasonably be made out, think of remote syphilitic infection. Arterio sclerosis is one of the visceral forms of syphilis. It is one of the hereditary forms also, especially with women. And here is a point for you. The presence of arterio-sclerosis in a young woman, with no pertinent history of gout in the family, is almost sure evidence of syphilis hereditary or acquired, more probably the former.

It will be well also to remember that although atheroma and arterio sclerosis may exist independently, they are frequently found to merge and blend into one another. Such is the case of this woman. The atheromatous changes with her are probably confined to the arch of the aorta, while the sclerotic condition of the arteries is likely to be generalized.

As a result of our previous work you are now pretty well drilled into the study of the physical signs of arterial pathology. We will now return to *chronic aortitis*. I will only sum up for you the few capital signs for which you must always look first in cases of this description, namely: the more or less roughened systolic murmur over the upper sternum, the elevation of the sub-clavians, and the set of uncomfortable, sometimes distressing sensations elicited by careful bi-manual pressure over the upper chest. The minor signs are: the sensitive phrenic points in the cervical region, the tenderness produced by pressure over the supra sternal notch, the more or less dry and metallic character of the aortic recoil.

The subjective symptoms are very numerous. Aside from the cerebral disturbances, the chilly sensations about the heart, the feeling of tremor and numbness, so marked in the case of this woman, you may occasionally find attacks of dysphagia from pneumo-gastric irritation, attacks of sub sternal pain simulating or heralding angina pectoris. You may find paroxysms of suffocation, supervening without any previous warning, and accompanied for a few

days afterward by the presence of albumin in the urine. You may find dyspnœa upon exertion and especially after meals. The sleep of these aortic patients is generally very much disturbed, especially as the case grows old. Besides many accidents are likely to occur in the course of this affection. I will cite the more dangerous only; such as the bursting a cerebral blood vessel, or its embolic plugging; the rupture of a small aortic aneurisn, and finally cardiac syncope.

Now, what can we do for this class of sufferers? No doubt the exact notion of the etiological factors of atheroma will prove extremely useful in the future, from a prophylactic and hygienic point of view, by bringing about beneficial changes in the diet, the mode of life, the mental habits of the people at large. There lies undoubtedly our greatest chance of immunity from the inroads of arterial disease. The regimen alone would do wonders. The suppression of butcher meats and alcoholic drinks from the daily diet of the masses would rapidly lessen suffering and mortality, without the question of a doubt.

Then from our pathological standpoint *plumbum* is exquisitely homœopathic to the atheromatous changes in the arteries, and as a remedy therein has given me great satisfaction. In this class of cases I use it mostly in the 30x or the 200x. *Oxalic acid* I find very useful to combat the painful sensations clustering around the cardiac or the solar plexus, the result of irritative stimuli arising from arterial changes.

Strontium iodide is my favorite in the therapeutics of confirmed arterio-sclerosis. I think it is the best agent that we have with a view to lowering the excessive blood pressure and checking the insidious fibrous changes, which not only threaten the integrity of the arterial coat, but also that of other important viscera, such as the brain, the lungs and the kidneys.

When this patient reports again, we will take a sample of her urine for examination, and the sphygmographic tracing of her pulse. We will give her plumbum 30x, 2

tablets in the morning, and oxalic acid 6x, 2 tablets three times a day. We thereby hope to control at once the morbid changes in the aorta and the subjective sensation arising therefrom. Later on the strontium iodide should be administered, as it possesses the double advantage of addressing itself to both the etiological and the pathological factors.

SOME OF THE COMPENSATIONS FOR THE OPERATIVE CRAZE IN GYNÆCOLOGY.

BY PROF. R. LUDLAM.*

"On peut accoucher avec *tout* et avec *rien*, ce qui n'est pas une raison pour employer ni *tout*, ni *rien*."—PAJOT.

So much has been said and written of the abuses, the excesses and the defects of gynæcological surgery that it may be well to consider a few of its practical compensations. Granting that the operative craze has assumed the character of a widespread epidemic of a highly infectious kind, and that much mischief and a serious fatality have indirectly resulted from its prevalence, we nevertheless think it possible to show that it has really been a blessing in disguise. For, like most of our resources, it may be useful and precious in proportion as it is harmful when misapplied.

The predisposing and exciting causes of this remarkable epidemic are various, and have generally been overlooked by those who have criticised us either unkindly or unwisely, or both.

1. *Ignorance of pelvic and abdominal pathology.* When the Institute held its last session in this city of Buffalo (1855) its entire membership knew little or nothing of the special pathology of the diseases of women, and the same was true of physicians everywhere. At our meeting in Cincinnati in 1865, when I proposed the formation of a Bureau of Gynæcology, the idea prevailed that the subject was neither large nor important enough to justify it. Eight years later (1873) a sub-bureau was formed, but until our good friend the late Dr. Ormes, of Jamestown, N. Y., brought a patient before us at the Chautauqua

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meeting in 1877, not one in a thousand of us had ever seen a live woman from whom the uterus and its appendages had been deliberately and successfully taken. Porro, of Pavia, had made his first hysterectomy one year before (1876), and Rein, of St. Petersburg, practiced excision of the gravid uterus without hæmorrhage in 1878. Storer, of Boston, had already removed a tumor without knowing that the imbedded womb contained a fœtus.

In the intervening twenty years (1877–97) American and European gynæcologists have cultivated this field with the utmost activity and assiduity. The consequence is that the reaction has induced the prevalent fever and mania for operating indiscriminately, without the safeguards of clinical sagacity and a trustworthy experience. Naturally enough the dash and the flash of a great number of surgical exploits have unbalanced the professional judgment and evolved a swarm of pseudo-surgeons, who think more of new expedients and a brilliant and skillful technique than of sound principles and the best ultimate results.

2. *The great number and the peculiar suffering of the class of patients that were interested in this specialty.* At the birth, or the renaissance of gynæcology, the conditions for its growth were extraordinary. While no one ever projected a specialty for which a lot of victims were not in waiting, gynæcology had more material at hand in its outset than any or all of them. The physical besetments of women; the woes and worries of the menstrual and the marital life, maternity and the menopause; the cruelties of an ignorant, infective, misapplied therapeutics that were often worse than absolute neglect, made them long for relief, and drove them to the doctors in herds. Under the circumstances they sometimes went hopefully, sometimes despondently, but always eagerly. This abundant supply of material so increased the demand for those who paid "particular attention to the diseases of women" that half the doctors went crazy forthwith. They were tempted and almost driven into gynæcology. They must make their position good by occupation, and nothing would bring them into notice more quickly and surely than a bit of audacious surgery practiced upon somebody's only wife or sister.

3. *Hasty and inadequate preparation for a professional emergency.* Some of you remember how, when the civil war came upon us, a host of half starved doctors and un-

ripe graduates from all over the country suddenly became patriotic, and as suddenly were possessed of the idea that they must enter the army as surgeons. The scramble for place was almost as ridiculous and disheartening as was the hasty preparation for the duties involved. In ordinary times, and with an all-around training, it is almost as difficult to tell where the doctor merges into the surgeon as it is to say where lamb ends and mutton begins; but in this case the transition was abrupt and phenomenal. And the consequence was that the professional emergency maimed and sent thousands of our boys in blue to untimely graves.

So with the advent of gynæcology as a distinct and separate branch of medical and surgical practice. It represented a later issue, and brought new demands upon us. Hundreds of physicians of all schools, and of no school, suddenly developed a loyal devotion to the best interests of the sex, and were impelled by a similar force to enlist as surgeons in an army that was set for the defense of our women. But these hasty recruits were self-commissioned and irresponsible. They had mustered themselves in, and, bad luck to it, nobody had the authority to muster them out.

These causes with others of a similar kind explain but do not justify what happened as a natural and necessary consequence. In the undeveloped state of uterine and peritoneal pathology the landmarks of rational practice were very indistinct. With an abundant crop of abdominal and pelvic tumors awaiting the scalpel; the hidden mysteries of the peritoneum to be explored; new instruments and new operations, with an unheard of technique to be devised and perfected, the incentive to those who were ambitious for surgical fame was very strong. The emergency that put the average doctor's services into immediate requisition was almost irresistible. Fitness, special knowledge, training and experience were of very little consequence. The thing was to take the current while it served. Those who were most crazy and precipitate left home to qualify in the shortest possible time, and the slightest advantages were considered sufficient. Then came a period of active competition in which the most extravagant claims for this or that mode of reckless surgery were set forth. The strife was for the largest number of victims, and very few women were allowed to escape.

If this sounds like turning State's evidence it notes the facts of the case, and concedes the right of those who have not fallen under the sway of the operative craze to publish and to defend their views. They are fully justified in exposing the abuses and the excesses of a mode of practice which they could not honestly approve, and in their reaction against it have very naturally gone to the opposite extreme.

The corollary of this statement, in which so much has already been conceded to the opponents of gynæcological surgery, is that some good results must have been obtained or its practice would have been entirely relinquished by the better class of physicians and surgeons. That reparation for the over-zealous wrong and mischief has been, and is being made on a worthy scale, my honorable colleagues in this particular Section can testify. Whether the compensation is ample, and in good measure a recompense to the race, I will leave you to judge a little farther on.

1. *Increased precision in pelvic and abdominal diagnosis.* Prior to the gynæcological era it was considered criminal to open the abdominal cavity in the living subject. The only exception to this rule was in the rare case of making the Cæsarean section. The consequence was that the real facts and lesions in serious pelvic and abdominal disease could only be recognized and identified at the post-mortem. Like one's last will and testament the diagnosis had to be proved and certified to *after the death of the subject.* It was always a belated affair, of the didn't I told you so order. Nothing was accurate, definite or satisfactory until it was too late for the doctor to do anything more for his patient. And, under the circumstances, what was learned at the autopsy neither enabled one to classify the morbid lesions in an intelligent way nor to do very much better in the next case that came along.

Abdominal section turned the light into what used to be called a "sacred" cavity, an unexplored region of the body, that has proved to be a mine of wealth to the pathologist, and of great practical importance to the earnest and capable physician and surgeon. What has been skillfully and successfully done through Tait's "window" is within your general knowledge. The disclosures and the resources of uterine, ovarian, tubal, renal, vesical, hepatic, splenic, pancreatic, gastric and gastro-intestinal surgery have all sprung from the possibility of

making that incision, and mastering the situation with safety. And that lesson was first taught by the gynæcologist. Let me illustrate:

In less than a month after this Institute had held its thirty-fourth annual session (June 1881), two of the most distinguished surgeons of this country were confronted with a bullet wound of the peritoneum in the person of the honored president of the United States. For eleven mortal weeks the slender, shifting, expectant method of always keeping out of the abdomen of the living lest one might learn something, or do something more for human relief, was practiced. It had the approval of the great majority of physicians and surgeons. Those of us who had repeatedly made the abdominal section for a different purpose were treated each morning with a record of the illustrious patient's pulse and temperature, and were left with the conviction that he was dying, as he finally did die, of a preventable pyæmia. A gynæcologist whose name (Sims) will be famous while ever women live and suffer, begged the privilege of opening that abdomen, exposing the wound, and treating it properly. But no; the surgeons were not practically familiar with that kind of work, and the general profession would not sanction such a bold and unheard of procedure. They did, however, permit the stupid use of electricity in order to locate the position of the leaden bullet, which was the only new expedient that they were willing to try.

The modern surgery of the other bodily cavities, and also of the joints, is the legitimate outgrowth of gynæcological practice and experience. If Spencer Wells had not sacrificed a few worthless dogs to teach us how to join the surfaces (not the edges) of the severed peritoneum, the surgery of all the serous membranes would have been much less perfect than it is to day. So that, whether my colleague, Dr. Shears, makes an intestinal resection, or Dr. Wood covers the stump in an abdominal hysterectomy, or my friend Dr. Williams, of Washington, successfully stitches up a big rent in the pericardium, the principle is the same, and so also is the practice. Let us give the gynæcologist his due.

The careful and accurate ante-mortem diagnosis of the various diseases of the uterine appendages, of the ovaries and of the uterus; of tuberculous peritonitis, intra-and extra-peritoneal growths and tumors of all kinds; of hæmatocele and pelvic abscess; of vesical, urethral and renal troubles; of ectopic gestation; of puerperal infection, and

of post partum and post-abortum lesions, has become possible through the early initiative, and through the application of sound principles and a skillful technique. It enables us not only to identify the lesion but also to proceed directly to the relief of those cases which, since there is no time to lose, cannot bear even a vigilant delay. Moreover, if the diagnosis is clear the operative indication will not be foggy or misleading.

2. *Greatly improved methods of treatment.* Gynæcological surgery has also rid us of certain fads and methods of treatment that were extremely foolish and mischievous. The common ulceration of the os uteri that everybody saw, or cauterized whether they saw it or not, in perspective through a Ferguson's tube, is now as rare as Gooch or Hodge's "irritable uterus," or as a case of hysteria in which the womb actually rises into the throat. Tapping in abdominal and vaginal diagnosis is resorted to almost as infrequently as the search for the ovarian cell in the field of the microscope. (That was the Philadelphia sell.) The curette has been revived and has superseded almost any amount of "topical tinkering," by a clean, safe and prompt method of relief in suitable cases.

The early and radical operation for uterine cancer has added years of a bearable and comfortable life to the experience of thousands of women. The better knowledge of uterine statics has taught us to discard most of the machinery and harness with which the poor victims of uterine deviation were clogged a few years ago. The vaginal incision has opened a route for exploration, operation and drainage that dissipates all doubt in certain pelvic disorders, and enables us to proceed safely to the radical relief of our patients, in the puerperal as well as in the non-puerperal state. Instead of standing by and letting our patients die of intra-pelvic sepsis, or pyæmia, we can open up, irrigate and drain the infected territory; instead of being scared by the bugbear of uterine adhesions in old displacements, we can verify their existence or absence, and treat them intelligently; and instead of balancing all sorts of subjective symptoms, we can literally place our finger on the objective signs that will locate the lesion (if there is one) in the uterus, the ovaries and tubes, the bladder or the rectum.

In general medicine and surgery the abortive treatment of peritonitis, and the practical safeguard of thorough

asepsis, both of which were first employed by the gynæcologist, have done and are doing an inestimable service.

Other facts that are essentially clinical pertain to the diagnosis and surgical treatment of extra-uterine pregnancy. When Gaillard, of the Hotel Dieu, Paris, insisted that in the great majority of cases pelvic hæmatocele is referable to mal ovulation, and is essentially a contingent of ectopic gestation, his theory could only be confirmed, as was the custom in those days, in the dead-room. But, when Tait exposed the uterine appendages in such a case, finding the ruptured vessel with the pelvis full of blood, and for the first time demonstrated the pathology of tubal pregnancy in a living woman, a flood of light was let into a dark subject, and the surgical indication was not far to seek. Thenceforth, instead of being helpless, like the great surgeons at the bedside of the good President; instead of being tempted to do the wrong thing in our ignorance; instead of trusting to the forlorn hope of internal medication; instead of waiting for the patient to die from a concealed internal hæmorrhage through a sudden visitation of Providence, the gynæcologist had a resource of his own. And now throughout the civilized world that resource meets and conquers that dangerous and highly dramatic emergency every day in the week, and almost every hour in the day.

A compensation that should not be forgotten is the reform in the practice of dosing and of over-medication that was prevalent under the old *régime* when our branch first came into vogue. Those who had once drugged their patients excessively could not be expected to practice gynæcological surgery with any better reason or judgment. They simply exchanged one dangerous propensity for another. Nobody does both; and, therefore, what is charged to the scalpel should be credited to those who in going to an opposite extreme have discarded the reckless use of drugs. They may, and probably will relapse, but it is no small matter, even temporarily, to have broken up such an inveterate and almost universal habit.

3. *The opportunity for those who are honest to learn the hard lesson of their own limitations.* The reaction against an abuse is wholesome when it quickens the sense of justice to all parties. Whatever causes the physician to realize that he is not so thoroughly equipped as to be able to give the best advice and to do the best work at all points is salutary. The surgeon who is safe in counsel concedes that his manual resources are not all-sufficient;

and the doctor who is best informed not only acknowledges that something curative may lie outside of his own orbit, but he knows enough to know when special skill is requisite in addition to his own. Moreover, he will be honest enough to ask for help, and *very careful where it comes from.*

If the general physician had been less narrow and inelastic in his theories, and the specialist more thorough and conscientious in his practice, the resulting mischief would have been averted. Let us remember that, in so far as the interests of the patient and of the profession are concerned, there is no choice between a medical crank and a crazy specialist.

My subject is too large for the limits of a single essay. It must therefore suffice to have called your attention (1) to the more obvious causes of a singular epidemic, *le délire des opérateurs*, as it has prevailed among us, and the profession generally; and (2) to the compensations that offset so much of irresponsible conduct and wrong doing. Those who condemn the teaching and practice of true conservative gynæcology forget the conditions under which its abuses were begotten, and overlook the compensations that are placed at a compound interest for the future and for humanity.

It has been said that "if meddlesome midwifery is bad, meddlesome gynæcology is worse." But gynæcology is neither meddlesome nor mischievous when its principles are sound and its practice is in the largest and best sense successful. There can be little doubt that with judgment and experience the profession will finally arrive at a correct estimate of its resources, whether they be medical, surgical or miscellaneous.

Clinical Society Transactions.

CORNELIA S. STETTLER, M. D., Corresponding Secretary.
ORRIN L. SMITH, M. D., Recording Secretary.

JULY MEETING, 1897.

The regular monthly meeting was held in the Hahnemann Medical College, July 31, at 8:30 P. M., Vice President, Dr. Jessie E. Shears, in the chair.

REPORT OF THE SECTION ON THE DISEASES OF THE EYE AND THE EAR.

C. JOSEPH SWAN, M. D., Chairman.

XXXVIII. Occipital pain connected with ear trouble. By Dr. C. F. Barker, Chicago.—I have recently treated two cases of occipital headache which, so far as my own experience goes, are unique.

In both cases the pain was unilateral and was located a little back of the mastoid process of the temporal bone, within an inch of the occipital protuberance, at about the level of the superior curved line of the occiput.

In one the pain had existed in varying intensity for about six weeks; in the other it began six months before the patient consulted me. In both cases it was of a dull, heavy, sickening character, uninfluenced by pressure, and seemed to be in the bone itself. It was always absent at night after the patient had retired, and could be quieted in the daytime if the patient would lay down awhile. Occasionally it was absent a day or two at a time. There was often a drawing sensation in that part of the trapezius muscle just below the seat of the distress, and holding the head so as to relax that muscle afforded a little relief, though the aching in the bone kept on.

The case that came first received two prescriptions from me before the ears were examined.

The knowledge obtained from this case caused me to

examine the next case for ear trouble before prescribing.

In neither one was the hearing at all affected, but in both I found a large mass of hardened cerumen and a slightly congested drum on the side corresponding to the pain.

In both cases removal of the wax apparently caused the pain to gradually disappear, though in the one of long standing there was not full relief for ten days. I gave the latter patient cal. jod. 2x four times a day after removing the wax.

Had the pain been in the mastoid process, or in the parietal region along the upper temporal ridge, it would have suggested to me a possible ear trouble. But a fixed pain in the occiput, from the above cause, is new in my experience.

The absence of other usual symptoms such as vertigo, fullness and tinnitus aurium was also likely to mislead. Both cases had received medicines before coming to me, but had experienced no relief. It seems probable that internal medication alone would have been useless.

XXXIX. Ear diseases in children. By Dr. B. D. Haseltine.—Inasmuch as the inflammatory aural diseases are more common in childhood than in after life, and as the management of such cases in children differs materially from the management of similar cases in adults, it is important that we become familiar with the essential points of difference in order that we may give these little patients proper care while the disease is readily amenable to treatment, and before permanent damage has resulted.

The treatment of middle ear disease is said to comprise 80 per cent of all otological work; and the part played by the so-called "children's diseases," the eruptive fevers, in the production of otitis media is well known to every practitioner. The reason for this is readily understood when we consider that anatomically the tympanic cavity is essentially a part of the upper respiratory tract, and any inflammatory process involving the lining membrane of the naso pharynx, such as is found in nearly all the exanthemata, may by a simple process of extension become a middle ear disease.

In view of the frequency with which tympanic inflam-

mation follows as a sequel to measles, scarlet fever, etc., one would expect every practitioner to be equipped with the simpler instruments for aural examination, and to be able to recognize inflammatory processes in this locality at an early stage. It is a matter of surprise, therefore, to note how few there are among those not especially interested in otological work who are familiar with the appearance of the normal drum membrane, or who can make an intelligent examination of this organ, particularly if the patient be a child.

The equipment for the simpler manipulations in children is essentially the same as for adults, and consists of the speculum, the head mirror and the probe, with the addition of forceps and the syringe for certain cases. The speculum will necessarily be of smaller size than those used for adults, and an assortment of sizes will be advantageous, as there is no uniformity in the size of auditory canals either in children or in older people.

The head mirror is an instrument of such constant service in general as well as in special work, that a thorough drill in its use should constitute a part of the education of every medical student. Skill in its manipulation is chiefly a matter of a little practice in a proper position, with a good mirror, which should be of rather small diameter—about three inches—having a focal length of about eight inches, with a good long shank for its support, and *without* any saddle appliance for the bridge of the nose.

The ear probe, or cotton carrier as it is often called, should be of flexible silver or of malleable steel, of good length, with a blunt, square end (not a bulbous one) for the easy application and removal of small pledgets of cotton, without which it is seldom used within the ear.

The method of procedure in the examination of a child's ear differs somewhat from that in case of an adult. It is invariably better when possible to gain the good will of our patient and dispel any fears which he may manifest as to the nature of our intentions. If he appear alarmed at the array of instruments or at the picture presented by the surgeon with the head mirror in position, he should be allowed a little time in which to investigate the nature of these strange objects, and when once convinced that they are nothing else than newly invented toys procured solely for his delectation, he will usually be found to manifest not merely an acquiescence, but a truly scientific enthusiasm and desire for further investigation. This may not

materially help us in our manipulations, but will prove more agreeable than active opposition.

In examining the ear of a child either with or without the use of the speculum, there are certain anatomical differences which must not be forgotten. In the adult, what is known as the cartilaginous portion of the auditory canal comprises something less than one-half its entire length, the inner one-half or more, being known as the bony portion, its walls being formed by the surrounding temporal bone. The direction of the canal, looking from without inward, is first slightly upward and then more nearly horizontal, and in straightening the canal for examination of its deeper portion, the auricle is pulled upward and slightly backward, after which a view of the drum membrane is often possible without the introduction of the speculum. In the child, however, the canal is almost entirely cartilaginous, its walls are prone to collapse and the drumhead can seldom be seen without the use of the speculum. Straightening the canal is best accomplished by traction upon the auricle in a backward and slightly downward direction, at the same time pulling it away from the child's head, thus putting the walls upon the stretch. This procedure may be compared to that of looking into the bottom of a bag, the mouth of the bag being drawn upward and distended. It is a common error to suppose that the tympanic membrane in the adult occupies a position more nearly vertical than that of the child, the latter being said to be almost horizontal. This is not true, as in both cases the position of the membrane approximates the vertical plane, but in the child it is very near to the external surface of the cranium and the direction of the canal being obliquely downward, we do not look as directly upon the drumhead as we do in the case of the adult. Familiarity with the appearance of the normal membrane can only be acquired by repeated examinations, but it may be described as a pearly white disc of nearly uniform color except at the triangular light spot which differs from other portions of the membrane only in the intensity of its illumination. This light spot is not so well defined in children and may not be discernible. A bright streak running downward and backward across the drumhead, marks the location of the long process of the malleus, and it is along this streak that we look for the slight redness which furnishes the first objective indication of an inflammation within the cavity. If along with this is observed a decided redness of other

portions of the membrane, especially about its margins, we may conclude that a tympanic inflammation is well established although as yet probably not in an advanced stage.

Other abnormalities, such as bulging, perforations, etc., will be readily recognized and their significance appreciated.

The methods which may be employed, whether for the purpose of examination or treatment, are of course fewer in the case of a child than in that of an older person. Such instruments as the rhinoscopic mirror and Eustachian catheter are of very little service in examining young children. Politzer's air bag may be occasionally employed but its use is seldom satisfactory. As we have not the coöperation of our patient we must seek to do our inflation at a moment when the naso-pharyngeal cavity is closed involuntarily and this is often a matter of considerable difficulty. The act of crying is of some assistance and may enable us to accomplish a very successful inflation. Children at quite an early age can sometimes be taught to "puff out" the cheeks, which will help to give a satisfactory closure.

Probably the instrument most frequently employed by the "ear specialists," both among professional men and laymen, is the syringe. This instrument when properly used, is of service in a variety of conditions, but its indiscriminate and unintelligent use is often productive of unfortunate results. It should be the invariable rule that the first step in the way of treatment must be preceded by a diagnosis as accurate as possible, of the exact conditions present, and neither water nor medicament of any kind should be put into the ear until it has been carefully examined in a dry condition. The practice of blindly syringing the ear for the removal of all extraneous substances, whether foreign bodies from without, or accumulated secretions from within the ear, is not to be commended. The syringe is of service in the removal of such substances only after a channel has been made through which the water may pass behind the mass, thus by its return flow forcing the body outward, and unless such a channel is known to exist, this instrument should not be employed. A disregard for this precaution in cases of foreign bodies or with impactions of cerumen, may result in driving the mass into the delicate structures of the ear.

In every case, the water at a temperature of 90 to 100°,

(cold water must never be put into the ear) should first be allowed to flow into the canal almost by its own weight, the rapidity being gradually increased until, where the membrane is intact, a very perceptible force may be employed, always stopping short of producing pain, and discontinuing if the patient shows signs of dizziness. It is better to begin very gently after each filling of the syringe, increasing the force and then diminishing again before the last of its contents are expelled. No air bubbles should be contained within the instrument, as these escaping into the ear, are always annoying and may cause great discomfort. It is often desirable to make use of medicinal agents, such, for instance, as antiseptic solutions in cases with purulent discharge, these being used in the manner described, having first been brought to a proper temperature. Where perforations exist the utmost caution should be observed and very little force employed, depending upon the solvent action of the fluid to accomplish the purpose, rather than upon the strength of the current. For receiving the water as it flows from the ear, a more clumsy contrivance could scarcely be found than the so-called "pus basin," which is generally recommended and very commonly used. It always interferes with the proper introduction of the syringe and is especially adapted for spilling its contents over the clothing of both operator and patient. As a substitute there is nothing more satisfactory than an ordinary glass tumbler such as may be found in every household. It fits nicely into the depression beneath the concha, allowing none of the fluid to escape; its capacity is such that it need not be emptied often; it is entirely out of the way, its transparency enables us to easily examine the material that comes from the ear and it possesses all the advantages of being easily and perfectly cleaned.

It seems scarcely necessary to say that the same vessel should *not* be used as a reservoir from which to fill the syringe and as a receptacle for the discharges which flow from the ear. Our sense of propriety ought to forbid a procedure at once so lacking in neatness and so thoroughly unsurgical. Yet this is found to be a common practice and at least one prominent specialist considers it a convenience, as he says, in the majority of cases.

Syringing should always be followed by a careful swabbing of the canal with absorbent cotton upon the cotton holder, to render all parts of the ear as dry as possible, and the patient should not go into the open air for

some hours afterward, without a protecting plug of cotton in the outer portion of the canal.

Finally it must be remembered that many times the local derangement is merely one of the manifestations of a general disease, and our estimate of any case is not complete without a consideration of constitutional and diathetic conditions.

DISCUSSION: Dr. CORNELIA S. STETTLER said: Although I have not had very much to do in this line of work, I have been interested in both of these papers. One case occurs to me in which a child of ten years had been treated for a year by a specialist in aural diseases of this city for an otorrhœa. For all that period she visited the doctor's office three times a week, following his directions explicitly with only temporary relief. When she was brought to me I observed that she was a "mouth-breather," was sleepless, had lost appetite and flesh, and appeared to be going into a decline. Being fully impressed with the idea that there was a post-adenoid growth that had caused the mischief, I sent her to Dr. Swan, who verified the diagnosis and advised its removal. I afterward assisted him in the operation, improvement began immediately, and she is now entirely well.

Dr. G. F. SHEARS: The papers presented this evening by both Drs. Barker and Haseltine are not only interesting but exceptionally practical. Each emphasizes the necessity for careful examination, and the acquirement of that skill in the manipulation of the simpler aural instruments that will enable the practitioner to see and recognize the various diseased conditions of the drumhead and the external auditory canal. This is the constant demand of the general surgeon, "use your hands and eyes." Theories are of value, but the value of the testimony of the senses is more important. Subjective symptoms are excellent indications for the selection of a remedy when objective symptoms cannot be obtained. I can therefore sympathize with the implied plea of these papers for thorough visual examination of every accessible part.

I hope I will not incur the disapprobation of the aurist when I say that the acquirement of the ability to see the tympanum and the deeper portions of the auditory canal, is not difficult and should be attained by all practitioners, yet I agree with Dr. Haseltine that few general practitioners seem to possess it. I remember reporting in the *Clinique* ten or twelve years ago, a series of cases of foreign bodies in the ear. In one of these cases the body had remained there for several years, the child had been treated for aural suppuration and only one physician, an aurist, had made an examination, and he relying evidently on the sense of sight, diagnosed polypus which I must confess, it did resemble. A touch with the probe soon dispelled this idea and careful syringing removed the intruder. Careful examination by sight and touch would have disclosed this case to the first physician who was called upon to treat it. Dr. Haseltine's caution as to the dangers of careless syringing is not out of place. Adam and Fryer report a case of fatal tetanus following careless syringing of a case of purulent otitis media.

Dr. HALPHIDE: When I come to a meeting of the Society at which a report of the section on the diseases of the eye and ear is to be had, I always feel that I am exempt and should not be called upon. I came with that feeling to-night. However, the essayists have reminded me of a case which came to me last winter. It interested me and may not be without interest to you.

The patient was a German girl of about fourteen summers, and she came to be relieved of deafness in the left ear and a constant dull pain in the left side of her head with roaring noises. The pain, while generally affecting the whole side of the head, at times centered in front of the ear. The deafness had come on rather suddenly several months before she came to me, after an attempt on her part "to get some hard wax out" with tooth-picks, hair-pins, etc.

Her mother had some memory of her having pushed a button into the ear when she was a child of two years, but

as no trouble followed she had almost forgotten the incident.

An examination discovered a hard, brownish mass imbedded in the ear which appeared on first inspection to be inspissated cerumen, but after removing a part of it a smooth glassy surface presented, which proved to be one of the facets of an irregular bead about one-fourth of an inch in diameter. As the bead was perforated it was easily removed with a pair of ear forceps by inserting one point into the opening and the other at the side of the object.

The hearing was instantly recovered and the pain as quickly removed. After cleansing the canal, dusting it with boric acid powder and protecting it with a pledget of cotton the girl went home happy.

Dr. R. LUDLAM: These two papers on ear affections strike me as very practical and quite in the line of the clinical work to which this Society is devoted. That of Dr. Barker illustrates once more the importance of the etiological factor not only as an element of correct diagnosis but also of successful treatment. The cases cited are of a kind that the everyday doctor is likely to have and to fail to cure, because he does not come to such a meeting as this, and perhaps does not care to read such clinical papers when they are printed for him. These little things are what we all need to know.

Dr. Haseltine's report is a credit to himself and to the Society. The instruction given for the management of ear diseases in children is clear, simple, practical and useful. The tact and the technique advised commend themselves, and we have no doubt that the essay will be of essential service to the general profession.

I was especially pleased with what the Doctor said of the "cheap and nasty" pus-pan. It is a relic of surgical barberism, and ought to be banished from every decent sick room and hospital in this country. The glass tumbler, which is always clean and available, will answer in ear cases as nicely as it does for receiving the urine, with or without the catheter, in gynæcological and obstetrical practice.

Dr. C. J. Swan: New methods of treatment for chronic suppuration of the middle ear are, for obvious reasons, always received with much interest. A London correspondent has just written me a most enthusiastic letter extolling pure oxygen as a cure for this often excessively obstinate disease. The application is long continued, and the oxygen is carried in a tube from a reservoir into the ear. Many cures of obstinate and long-standing cases have been made, and I expect shortly to report results of this form of treatment myself, as I am just beginning to use it.

Various digestive extracts are also used in middle ear suppuration. In Berlin, gastric juice from the stomach of dogs has in many cases effectually digested and removed all infectious and irritating material, like necrosed bone, from the diseased ear, leaving the mucous membrane clean and healthy.

XL. The eye muscles in disease. By Dr. C. J. Swan.—Because of their intimate relation with the brain the muscles of the eye form a group that will reward one both in the study of their physiological and pathological conditions more fully than any other collection of muscles in the body.

When it is remembered that in the nerve supply of the eye are engaged two-thirds of all the cranial nerves, and that of these four—namely the third, fourth and sixth supply the eye muscles, the intimate connection of these muscles with the brain is readily appreciated.

In order to freshen the memory of the members present I will recall to their minds the names and nerve supply of the ocular muscles. The superior, internal and inferior recti muscles and the inferior oblique, all derive their motor impulses from the third cranial, as do also the sphincter iridis and the levator palpebrarum.

Thus it is seen that seven of the ocular muscles are supplied by the third nerve. The origins of all these nerves can be traced to the floor of the fourth ventricle

and to the aqueduct of Sylvius. The exact action and location of the muscles and the course of the nerves innervating them will not be given for fear of resolving this clinical paper into a dissertation upon anatomy. It is needless to say that an intra-cranial neoplasm will, in nearly all cases, either by direct pressure, by involvement, or by the irritated zone which surrounds it, affect one or more of the nerves which find their destination in the orbit.

In the wealth of material that we have in the ophthalmic clinic of the Old Hahnemann there have been several cases of muscle paresis and paralysis due to intra-cranial neoplasms or to diseased nerves.

A noticeable case was that reported by Dr. A. K. Crawford in the February, 1897, CLINIQUE.* This was the case of a young negro in whom there was found upon post-mortem as previously diagnosed, a gummatous deposit, the size of an English walnut under the sphenoidal lobe of the right hemisphere. The first symptoms, and the only early symptoms, were optic neuritis and absolute paralysis of all the ocular muscles of one side.

Another case which had not so unfortunate a termination, was that of a young man, twenty-eight years of age, who came to our clinic complaining that "suddenly he began to see things double." Tests showed the acuity of vision to be normal in both eyes, and the general appearance and position in the direct glance to be good. In turning the eyes up, down, or to the left they followed each other exactly and coördination was perfect. When, however, he directed his glance to the right, the right eye made only a partial excursion outward, showing paresis of the right external rectus. The patient confessed to having been syphilized two years before. Diagnosis, syphilitic gumma along the course of the sixth right cranial nerve. He was put upon medication and entirely recovered in about one month.

* See page 63.

According to Max Knies, "Every paralysis of an ocular muscle which occurs suddenly in a healthy person (without injury, apoplexy or other brain symptoms, diabetes mellitus, or insipidus, syphilis, albuminuria, etc.), arouses a suspicion of beginning tabes, especially if it recovers in a comparatively short time or subsequently relapses." I will add that about 75 per cent of all cases of sudden paralysis of a single muscle or group of muscles is due to syphilis, the remaining 25 per cent having as excitants the diseases and conditions just quoted from Knies.

A third case was that of a man forty-three years of age who complained of growing dimness of vision; test showed ability to count figures at six feet with the right eye. Vision $\frac{2}{100}$ in the left eye. No movement of the right eye upward or inward. Excursions in all other directions normal. Partial optic atrophy in both eyes. The other nervous symptoms, of which this patient had a full line, all pointed to tabes. He was put under treatment and came to the clinic a few times, but grew rapidly worse and being unable to come to the hospital was lost sight of and probably died at home. This patient also confessed to having been syphilized ten years ago.

Linnel says in his recent excellent work:* "It is estimated that from 20 to 40 per cent of cases of tabes are accompanied with ocular palsies, which are of sudden development and of transient duration, with frequent relapses. One or both eyes may be affected. Thus we see that the symptoms resemble very closely those resulting from syphilis, and it should be remembered that most tabetic patients have at some time been syphilitic."

One peculiarity about the muscle involvement in the last cited case should be noted. Of the seven muscles innervated by the third nerve but two were affected. This is explained by the fact that the third nerve arises from several nuclei in the aqueduct of Sylvius. Linnel has these centres arranged in a practical table as follows:

*The Eye as an Aid in General Diagnosis, a handbook for the use of students and general practitioners, by E. H. Linnel, M. D. Published by the Edwards and Docker Co., 1897.

Centre No. 1 innervates the ciliary muscle; centre No. 2 innervates the sphincter irides; centre No. 3 innervates the levator palpebæ; centre No. 4 innervates the rectus internus and superior; centre No. 5 innervates the rectus inferior and obliqus superior. In this case the centre for the superior and internal recti muscles alone was affected, and presumably the optic chiasm, as both optic nerves were atrophied.

A fourth and the last clinical case that I will cite was that of a baby eight months old. The mother came with the diagnosis already made by her family physician. "Paralysis of the under lids which therefore failed to hold the eyes up." Examination showed that the eyes did indeed droop, the corneæ being nearly buried under the lower lids, due, however, not to any trouble of the lids, but to paralysis of the superior recti muscles. The mother gave a history of a slight attack of diphtheria while nursing the child and a diagnosis was made of post-diphtheritic paralysis. I may add that paralyses of this sort are often the earliest symptoms of meningitis. Post-diphtheritic paralysis is not due to a central lesion, but to a peripheral inflammation of the nerves and is usually self-limited.

Aside from the organic diseases of the nerve supply of the ocular muscles we have an almost countless number of disorders of function of these delicate adjustors of the organs of sight.

Ranney in his recent work entitled "Eye-Strain in Health and Disease,"* makes the assertion that the largest proportion of functional nervous disorders are a direct result of eye-strain and due to the nerve waste following imperfect fixation and refraction, and substantiates his position by giving in tabulated form an immense number of cases, not only of so-called functional nervous, but of every sort of disease known to man except the

*"Eye Strain in Health and Disease," with special reference to the cure or amelioration of chronic nervous derangements without the aid of drugs, by A. M. Ranney, A. M., M. D., author of "Lectures on Nervous Diseases," "The Applied Anatomy of the Nervous System," "Practical Medical Anatomy," etc. F. A. Davis & Co., Lakeside Building, Chicago.

infectious and contagious varieties, cured and improved by relief of eye-strain. While I can subscribe to much in his work some of his cases will stagger an enthusiastic but honest oculist. Nevertheless I think his enthusiasm pardonable, and believe with him that the nerve-leakage caused by the constant effort to adjust eyes unbalanced and out of focus may so undermine the nervous system as to open the way for the entrance into the body of almost any disease.

The treatment of eye-strain consists in relieving it by means of carefully fitted glasses, by properly conducted gymnastics of the eye muscles, by the use of prisms, and as a last resort by operation. It is unnecessary to cite cases here, for this is the routine daily work of the oculist, and he who has not found success along this line may truly be said to be unsuccessful in his profession and out of his orbit.

We have also a class of muscular abnormalities which cause no eye-strain but are much more apparent to the passing observer than the former class. I refer to so-called "squint." In cases of squint we have no nerve waste due to efforts at fixation, although there may be from efforts to focus, because the muscular error or abnormality is so great that it is impossible to have binocular vision, therefore efforts at binocular fixation are cast aside and the patient uses one eye at a time and allows its fellow to rest and to go whither it listeth. In alternating squint, that is when the visual acuity is good in both eyes, and sometimes one eye is used for fixation and sometimes the other, we often have a high degree of refractive error as the cause thereof, and the remedy for the muscular error and for the refractive error lies in the properly fitted glasses. When, however, one eye is very defective in vision operation is the only remedy, and it is an operation for cosmetic effect alone.

This paper is simply a sketch, and a superficial one at that, of the eye muscles in disease. It is impossible to do so great a subject justice in a brief report to this Society

that will be adapted to the needs of the general practitioner, and I think I might even suggest it to some enterprising author as a title for a goodly volume.

DISCUSSION: Dr. C. F. BARKER: Some time ago I treated a case of epilepsy in a young girl. Many of the convulsions came on after reading, or after any work requiring close application, and she was troubled greatly with headache. I suggested that her eyes might need a careful examination, and the parents took her to an oculist with whom they were acquainted. He prescribed prismatic lenses, changing them every few days. After several weeks he announced the presence of a muscular insufficiency, and the need of a tenotomy for its relief. There was no apparent strabismus present in this case.

I do not, of course, doubt the correctness of the specialist's diagnosis, but what I would like to ask Dr. Swan is this: In such cases, how can an operator be sure of relieving the eye strain, or of correcting the difficulty by a partial or complete tenotomy? Would not there be a pretty good chance of making matters worse?

Dr. C. J. SWAN: To answer Dr. Barker's question fully and completely it would be necessary to go into the detail of the examination for muscular error or "error of fixation," or again "heterophoria," as it is more technically termed; and also into the detail of the various methods of correction. Recognizing the fact that the Society is interested in this work, I hope at a future time to write a paper upon this subject. There is too much of it for a discussion and I will therefore confine myself to answering the question directly in the briefest manner possible.

In this class of cases when the patient involuntarily overcomes the deviation of the eyes it is impossible for the examiner to determine that the eyes are not straight without instruments of precision. Stevens, of New York, has probably invented the best and most accurate of these instruments, of which there are many. Several modifications of it have been made, but all alike depend upon the

displacement of the image of the object observed by means of prisms, or making the object (preferably a candle flame) appear like two different objects, by means of, for example, a red glass before one eye and a colorless glass rod before the other.* This relieves the patient of the desire to bring the eyes into line, and if there is a lack of balance in the eye muscles the objects will be more or less widely separated according to the amount of muscular error and the amount will be measured by the strength of the prism placed before the eye, which will fuse the two images.

If, on the other hand, the images overtop one another without the use of prisms, it will show the muscular balance to be perfect. There are many other tests to which the muscles must be subjected before a course of treatment is undertaken, notably tests for the purpose of determining the relative strength of the various muscles.

If operation is finally decided upon, the amount of cutting of the stronger muscle or shortening of the weaker one, is determined first by the experience of the operator, and next by his instruments for testing. If it is decided that the stronger muscle must be weakened a small buttonhole is cut in it, after which the patient is again tested. If it is desired to increase the effect the buttonhole is enlarged and the test repeated until the wished for effect is obtained.

I ought to say here that a good deal of unnecessary muscle cutting and hacking is being done by charlatans and quacks. The operation is nevertheless all right and proper when indicated (as in the operation for hæmorrhoids which has likewise been much abused), but it won't cure everything.

Dr. G. F. Shears: I do not feel capable of discussing the technical points of Dr. Swan's excellent paper, but in his report of the different cases of eye muscle paralysis I am reminded of a case of cerebral sarcoma sent to me for diagnosis and treatment. The case presented the usual

*The Maddox rod-test.

symptoms of cerebral tumor, vomiting, headache, vertigo and occasional epileptic seizures. In addition to the symptoms referred to, the patient had a very annoying spasm of some of the muscles of the right eye, with paralysis of certain others. I sent him to an oculist, who reported optic neuritis with choked disc in the right eye. The monocular character of the spasm and paralysis was one of the most prominent of the localizing symptoms, and when the oculist reported that only one fundus was involved, it practically settled the location of the tumor.

Incidentally I may say that, leaving aside exploratory incision and actual examination of the brain substance, the skill of the oculist gives us our best idea of brain conditions; and I never operate in a cranial case except in gross traumatic conditions, without his advice and counsel. Papers of this kind are therefore of value not only to the eye specialist, but to every practitioner who appreciates the interdependence of the different specialties.

Dr. R. LUDLAM: Not only does Dr. Swan's excellent paper show the mutual relation between the work of the oculist, the neurologist and the cranial surgeon, but between them and the general practitioner as well; for the all-round doctor needs to know when an obscure or difficult eye case, or brain case, or both, needs to be sent to the proper party, and who to send it to. This paper illustrates the reciprocal relation of any number of physicians who may be concerned in the patient's welfare. It shows how one specialist may supplement, without superseding another; how the refinements of a careful clinical diagnosis can be made available at all points; and how the sum of our resources is better than any single, hard and fast method of treatment for cases that are complicated, and difficult of cure.

The clinical relation of the eye to the general system, and the morbid results of eye-strain are subjects that merit the most serious attention and study. I congratulate the members of this Society and the readers of the CLINIQUE upon the production of this essay by our friend, Dr. Swan.

Its matter is as practical and suggestive as it is fascinating in its details and in the manner of their presentation.

Dr. JESSIE SHEARS: Dr Swan's reference to the effect of prisms and the use of gymnastics in deformities of eye muscles reminds me of a case which has been under my observation for the past nine years. The patient, now eleven years of age, was born with one eye much sunken and the pupil turned toward the inner canthus. So far as I have been able to learn, the only treatment which was followed in this case was the fitting of prisms to the eyes and the binding up of the normal eye for a number of hours each day, thereby exercising the deformed eye. This treatment was begun when the child was about two years old and was continued for about seven years. At present there is no perceptible difference in the size of the two eyes, and I am assured by his mother that he sees as perfectly with one eye as with the other. He continues to wear glasses. I would like to ask Dr. Swan if this is a common or satisfactory method of treatment?

Dr. SWAN: The case just cited by Dr. Shears is not an uncommon one, and the squint is here due to refractive error of the hypermetropic variety. It is explained by a certain relation which exists between accommodation and convergence. Thus, in fixing or looking at an object brought near to the eyes a person with normal refraction must accommodate strongly in order to focus the object observed upon the retina. He must at the same time converge strongly in order to fix the object with both eyes, so normal eyes when they accommodate strongly or make a great effort with the ciliary muscles makes one equally great with the internal recti.

Hypermetropic or far-sighted eyes must always both in near and distant vision make an effort of accommodation in order to see distinctly, and because of the relation between accommodation and convergence the eyes are very apt to turn in. Then comes the habit of using one eye at a time or one eye continually while its fellow grows weak from non-use (amblyopia exanopsia). In this class of

cases correcting glasses, if given early enough, which will relieve the effort of accommodation, will also make the convergence to disappear. When one eye has become amblyopic from non-use it can be brought back to usefulness by compeling it to come into action by binding up the more active eye.

VOLUNTEER PAPERS. XLI. THE BLOOD IN HEALTH AND DISEASE. By. DR. A. C. HALPHIDE. Part III.*—Hæmatic science is young but it has already abundantly proven its usefulness in clinical medicine. It has furnished the key to the solution of many knotty problems and illumined many obscure cases, but it has disappointed us in some directions where much was expected from it.

Pathology of the blood includes many changes and deviations from the normal, some of which should receive brief consideration before we proceed with the special topic of the paper.

Concentration of the blood with a corresponding increase in the colored corpuscles (polycythemia) per millimetre, occurs in diarrhœa, purgation, profuse vomiting, starvation, etc. All of these are but temporary in effect, the blood soon regaining its equilibrium. Somewhat more permanent in their effects are chronic diarrhœa, diabetes, profuse suppurations, night sweats, etc.

Dilution of the blood is less common than the temporary concentration and is caused by any condition producing a lowered blood pressure which allows the entrance of the perivascular lymph. The conditions causing either concentration or dilution of the blood must be taken into account when examinations are made else serious errors will occur.

Sometimes there is a decrease in the red corpuscles, in the hæmoglobin, or both (anæmia) arising from primary or secondary causes. In some cases the changes in the blood are profound, the number of red cells is exceedingly small and the percentage of hæmoglobin very low. Nucleated red cells (erythroblasts) are found in these cases as well as irregular shaped red cells (poikilocytes). The total amount of blood seldom varies other than temporarily, the

*In other papers, published in THE CLINIQUE, I have discussed the first part of this subject; the morphology of the blood in vol. xvii., p. 672; methods for clinical examination of the blood in vol. xvii, p. 723. This paper will give the blood conditions in disease.

solid elements are replaced by watery elements taken from the tissues giving rise to a condition known as *hydræmia.*

The leucocytes are often found increased in numbers (leucocytosis) or occasionally decreased (leucopenia). In these cases usually one class of cells is increased while the others are normal or even decreased and often much depends upon the kind of leucocytosis present as to what it may indicate clinically. Sometimes a leucocytosis is of little importance, as for instance after a meal, in pregnancy, etc., which are physiological conditions, while in other instances it is of the utmost importance, as in malignant or toxic conditions. Leucocytoses from most pathological causes have a marked increase of the adult cells (polymorpho-nuclear) at the expense of the young cells (lymphocytes).

Other changes in the blood that may be met with are: the increase or decrease of fibrin; the presence of small quantities of fat; the presence of pigment (usually in leucocytes,) and changes in its coagulability. More of these presently.

ANÆMIA. Anæmia was considered in a separate paper and nothing need be added here.*

LEUKÆMIA AND HODGKIN'S DISEASE. Leukæmia has been considered in the past by many authors as an extreme, permanent leucocytosis, but we know it is something wholly different, not only in its phenomena, but also in its kind of cells. There are two distinct types of the disease; the splenic myelogenous and the lymphatic. Two very marked blood conditions characterize these types. Either type may run an acute course, but the lymphatic is the more likely to do so.

Splenic myelogenous leukæmia shows no changes in the blood visible to the unaided eye, however, the abundance of colorless cells render it difficult to spread it upon the slide and it coagulates slowly. There are two striking features that are always present upon examination; the large number of nucleated, red corpuscles, both normoblasts and megaloblasts, and the large proportion of non-amœboid white corpuscles, due to the presence of such large numbers of myelocytes which do not possess the power of amœboid motion. Qualitative changes are not great and correspond to the degree of anæmia present.

*THE CLINIQUE, January, 1897, page 270.

The quantitative changes are marked, indeed, there are cases on record where the white cells were more numerous than the red. The average ratio is about one white to eight red corpuscles. The characteristic cell in this disease is the myelocyte from which it takes its name, but eosinophilic cells are absolutely much increased and they appear in several types, namely: polymorphonuclear, smaller cells and eosinophilic myelocytes. Neusser's perinuclear basophiles or "uratic chains" are said to be plentiful in this disease.

Lymphatic leukæmia, as the name suggests, presents great numbers of small lymphocytes as characteristic of the disease. Upward of 90 per cent of the leucocytes are of this type. It is often impossible to separate the lymphocytes into "large and small" for they appear in all gradations of sizes. Quantitative changes are not so marked as in the splenic leukæmia. The average ratio is about one white to forty red cells. The number of red cells is somewhat lower (3,000,000) but the nucleated red cells are much rarer than in the former disease. Myelocytes and eosinophiles are scanty.

Pseudo-leukæmia, or Hodgkin's disease, is identical with leukæmia in its pathology, indeed, it is impossible to make any differentiation between their lesions outside of the blood. But here what a difference! In one case the blood is practically normal, while in the other it presents the conditions noted above. However, while in the earlier stages of pseudo leukæmia the blood is normal, later there is often a marked anæmia and sometimes leucocytosis.

The diagnostic value of blood examinations in leukæmia and Hodgkin's disease is very great. They are thus usually readily distinguished from splenic tumors;* enlargement of lymphatic glands caused by syphilis, tuberculosis and malignant diseases; extreme leucocytoses; chronic malaria and amyloid diseases et cetera. Hodgkin's disease is with difficulty distinguished from syphilis, tuberculosis or malignant disease by blood showings.

INFECTIOUS DISEASES. Blood changes occurring in infectious diseases are often largely due to the fever associated with the diseases and to the toxic effect of the infection. As the first (fever) is common to all it may be well to consider what changes in the blood result from a rise in temperature.

*Dr. H. T. Brooks, New York, reports a case of splenic tumor, in which the blood count was one white to five red cells—a very rare case.

Fever causes a concentration of the blood, by a contraction of the peripheral circulation and by the greater loss of water during its continuance. When the fever subsides a dilution of the blood occurs, due to the dilatation of the peripheral vessels and the destruction of the blood cells. So we find an increased number of red cells per millimetre and increased specific gravity during the fever with a corresponding marked fall in the number of cells per millimetre and decreased specific gravity proportional to suddenness and extent of the fall in temperature. Destruction of red corpuscles with more or less increase of the white corpuscles are the only constant changes in the corpuscular elements of the blood during fever.

Typhoid fever. Outside of those that regularly occur in fever there are few changes and those not marked in uncomplicated typhoid fever. No leucocytosis is present, but post-febrile anæmia with a leucopenia usually occurs in the late weeks. Young leucocytes are increased in percentage at the expense of the older forms, especially in the later weeks of the disease. Most complications cause leucocytosis.

Blood examinations are chiefly valuable in the diagnosis for it enables us to make a diagnosis by exclusion. Almost all inflammatory conditions, as abscesses, appendicitis, pneumonia and the like, are accompanied by marked leucocytosis, while typhoid fever is not.

Widal has given us a valuable method for the diagnosis of typhoid fever.* The method has been verified and adopted by many competent observers. It is so simple that any one may successfully use it. A drop of a twenty-four to thirty-six hour bouillon culture of typhoid bacilli is placed upon a slide, to this is added a part of a drop of serum from a typhoid patient and a cover slip placed upon the mixture. Upon examination, with a microscope, a characteristic "reaction" will be observed. Instead of a field of evenly distributed motile bacilli there will appear masses of inactive bacilli. This "reaction" is found in persons who have had typhoid fever months before and have wholly recovered from it.

Diphtheria. Bacteriological examinations of exudates have given better diagnostic results in diphtheria than blood examinations. Bacilli of diphtheria are not found in the blood; nor are the changes in the blood profound or

*La Semaine Médicale, 1896, p. 259.

of great diagnostic value. Anæmia of a mild character occurs in most cases. Likewise leucocytosis is present proportional to the severity of the case. Adult leucocytes predominate before the crisis, but are often diminished afterward. In severe cases myelocytes are numerous. Cases showing no leucocytosis are very mild or very severe. The prognosis is grave in severe cases without leucocytosis and where many myelocytes are present.

Pneumonia. Diplococci of pneumonia are found in the blood occasionally in severe cases of pneumonia where general infection has occurred. These cases have generally proven fatal. The specific gravity is usually high and the red corpuscles are increased during the fever stage, but after the crisis there is a slight anæmia due to the dilatation of the peripheral vessels and the destruction of red cells (hæmocytolysis.) More striking changes occur in the white corpuscles. Very early in the disease the leucocytes are greatly increased. However, there are exceptions; in some very mild and some very severe infections no leucocytosis occurs. Ninety per cent of the increase of white cells is in the adult. The lymphocytes are greatly decreased and eosinophiles are generally absent. Hence it is seen that from diagnostic and prognostic points of view the blood affords priceless help. In central pneumonia it enables one to exclude such diseases as malaria, typhoid, grippe and the like, which will greatly aid in arriving at a correct diagnosis. The leucocytosis may direct the attention to the lungs in old people when other signs are absent. The absence of leucocytosis may lead one to make a grave prognosis for it is all but certain that the absence of leucocytosis, in all but very mild cases, points to a fatal termination.

Rheumatism. In rheumatism the state of the blood runs parallel with the fever and the intensity of the lesions, and furnishes a reliable guide to the patient's condition. The red cells are greatly diminished and the hæmoglobin still more. Fibrin is greatly increased. Poikilocytes and erythroblasts appear in cases where the anæmia is marked. The white cells are increased, leucocytosis is the rule and in degree follows the severity of the case. While the changes are constant and marked in rheumatism, the blood furnishes little information that could not be obtained from other sources.

Scarlet fever. In general the changes in the blood in scarlet fever are those due to the elevation of the temperature which were mentioned above.

Slight diminution of the red cells and hæmoglobin and an increase of fibrin occur. Where there is no inflammatory complication blood conditions are not far removed from normal. The white cells are regularly increased early in the disease—several days before the rash appears. The leucocytosis is most marked in the severest cases. The adult forms of leucocytes characterize this leucocytosis. Eosinophiles are greatly increased, often reaching 6 per cent. These last have been found of prognostic importance. It has been observed that they increase in favorable cases and are absent in bad cases.

Blood examinations in scarlet fever are chiefly important in distinguishing the disease from *measles*. In mild cases of measles there are no changes in the blood at all and there is never leucocytosis or changes other than those due to fever, in uncomplicated cases.

Septicæmia. All forms of infection with pyogenic bacteria may be considered together since their effects on the blood are identical. In most of these cases pyogenic organisms may be found in the blood, which is a great help in diagnosis. The blood is most profoundly affected in septic infections and a very pronounced anæmia is present in severe cases. The red cells fall as low as 3,000,000, and rarely, lower per millimetre and the hæmoglobin to a corresponding degree. In severe cases the red cells are smaller than normal and many deformities in shape are found. Hæmoglobinæmia is sometimes present. The white cells are markedly increased except in mild and very severe cases. Leucocytosis only occurs when a fierce struggle occurs between the patient and the disease. The adult cells largely make up the increase of leucocytes.

It is plain that the findings in septicæmia are of great value in diagnosis. They enable us to differentiate between septic and nonseptic wounds, judge of the degree of sepsis and aid in deciding when it is best to operate and after operation give us certain information of the progress of our cases.

Appendicitis and abscess. The effects upon the blood in abscess are due to sepsis, but there are important differences between abscess and septicæmia. The epidemic of operation in appendicitis has given us abundant verification of the findings in blood examinations. Moreover, appendicitis is a typical case of abscess formation and what we find in it we are likely to find in other abscesses.

No changes occur in the red corpuscles except those

due to fever but there is always an increase of fibrin in suppuration.

White cells are increased as in most other infectious diseases. Total absence of leucocytosis augers evil. An increasing leucocytosis indicates a spreading process and is also a bad sign. The size of the leucocytosis is no sure guide to the severity of the case.

In a differential diagnosis, marked leucocytosis excludes simple colic, gall-stone colic, renal colic, and intestinal obstruction not complicated with ulceration, gangrene or due to cancer. It also excludes uncomplicated typhoid fever, ovarian and pelvic neuralgia and floating kidney. Pus-tubes cannot be distinguished from appendicitis by the blood as they both affect it alike.

Tuberculosis. The most striking feature of the blood in tubercular diseases is the lack of profound changes. Many patients who present a pallid appearance show no anæmia upon examination of the blood. However, in a small per centage of cases the red cells and hæmoglolin are both diminished. In severe cases poikilocytosis may be marked, but erythroblasts are never found except in cases where a severe hæmorrhage has recently occurred. Pure tubercular infection, no matter where its seat may be, has little or no effect upon the blood. Mixed infection produces the usual effects of septicæmia.

In like manner the white cells are little changed in pure tuberculosis.* So long as the infection is unmixed there is no leucocytosis, but when secondary infection and septicæmia occur we find evidence of them in the blood.

Pulmonary tuberculosis is not different from the above, except after hæmoptisis, formation of cavities, extensive infiltration of lung tissue (tubercular pneumonia), injection of tuberculin and fever, when more or less marked leucocytosis occurs. *Fibroid phthisis* alone does not usually cause an increase of leucocytes. When leucocytosis does occur we find a marked increase of the polymorpho-nuclear neutrophiles at the expense of the lymphocytes. Myelocytes and perinuclear basophiles appear in advanced cases. Neusser and others advance the theory that the occurrence of the latter are the sign of a favorable result.

*Dr. Holmes of Denver, Col., described in the New York Medical Record, Sept 5, 1896, various changes in the white blood cells which he thought to be characteristic of tuberculosis in its earlier stages. If he is correct he has made a discovery of immense importance, but other investigators have not confirmed his findings.

Other tubercular infections, as bone, miliary, peritonitis, pericarditis, pleurisy and glandular tuberculosis all present exactly the same blood conditions as pure tuberculosis above mentioned, except in cases of diarrhœa, exudation or transudation. These last withdraw the watery part and concentrate the blood, and give a normal count at times when there is a marked anæmia.

Syphilis. The pronounced effect of syphilitic poison upon the system is well shown by the condition of the blood. The red cells and the hæmoglobin are both diminished from the time of the primary lesion and they progressively decrease during the primary stage, but more rapidly after the appearance of secondary symptoms. The hæmoglobin is more profoundly affected, and often sinks in untreated cases to 30 per cent or lower. In tertiary stages and in hereditary syphilis the red corpuscles are still more seriously affected, producing in some cases fatal anæmia.

Leucocytes likewise suffer characteristic changes. The first stage is usually marked by a slight leucocytosis. Young cells are high, and adult cells low in percentage. When eruptions break out the lymphocytosis is more pronounced, and eosinophiles are increased. This condition generally continues in the tertiary stages, together with appearance of a few myelocytes. Specific gravity corresponds closely to the hæmoglobin. Leucocytosis shows that the disease has gotten beyond the primary stage.

Diseases of various organs. Diseases of special organs exert an influence more or less marked upon the general constitution, and as the blood is an index of the general health, it easily follows that blood examinations are most important in these cases.

Digestive apparatus. Diseases of the stomach may profoundly affect the blood in several ways. They may prevent proper absorption of nitrogenous food, and thus starve the tissues, including the blood, producing marked anæmia; they may cause severe hæmorrhages, with similar results.

Gastric ulcer causes severe anæmia, and that too in spite of the concentration of the blood due to frequent vomiting. No disease except pernicious anæmia shows such a decrease of red cells and so low a color index. Leucocytosis is practically never present, not even the digestion leucocytosis, except temporarily after hæmorrhage. This is important in distinguishing it from car-

cinoma, for malignant diseases always produce an increase of white cells.

Acute gastritis does not affect the red corpuscles, but usually produces leucocytosis. *Chronic gastritis*, on the other hand, through malnutrition, causes anæmia, and often leucopenia.

Acute enteritis or entero-colitis give the same picture as that found in gastritis. Intestinal obstruction, if caused by cancer, cannot be distinguished by the blood from peritonitis.

Liver. Blood counts in diseases of the liver have chiefly diagnostic value. Leucocytosis, if constant, excludes simple catarrhal jaundice and suggests malignancy, cholangitis or abscess. Blood in cirrhosis has no diagnostic value except to exclude abscess and hydatid cyst by the absence of leucocytosis. Cirrhosis and syphilis show the same blood changes except in severe cases of syphilis they are more marked.

Kidney. Marked changes are found in the blood in nephritis, the red cells are decidedly diminished and the hæmoglobin suffers still more; there is leucocytosis and an increase of blood plates. The changes are not sufficiently characteristic to be of much value in differential diagnosis. The presence of œdema appears to have no influence on the blood, from whatever it may result.

Heart. Myocarditis only affects the blood when the heart wall is greatly weakened producing stasis and disturbances of the circulation, then the changes are the same as those which occur in valvular diseases mentioned below. Endocarditis does not alter the blood of itself but in infective and malignant cases marked changes occur. Bacteriological cultures are valuable in diagnosis in such instances.

Valvular lesions of the heart of themselves do not affect the blood status, but where compensation fails it becomes diluted, the specific gravity falls, and the red cells and hæmoglobin are decreased. Where the heart partially adjusts itself to its increased work and the chronic passive congestion a concentration of the blood occurs, but the corpuscular elements are unchanged.

Nervous and mental diseases. The findings in these diseases are rather unsatisfactory and disappointing. Diseases of the brain have little effect on the blood. *Neuritis* usually causes anæmia and leucocytosis. *Insanity* is usually accompanied by anæmia. *Puerperal mania* may be distinguished from puerperal sepsis by the presence of leucocytosis in the latter. *General paralysis* of the insane is

marked by slight anæmia and slight leucocytosis. *Hysteria* and *neurasthenia* show normal blood.

MALIGNANT DISEASES. Malignant diseases, both sarcomata and carcinomata, cause a proportional reduction of specific gravity and hæmoglobin of the blood. No disease except pernicious anæmia more profoundly affects the blood. There is, however, considerable difference between carcinoma and sarcoma in their effects upon the red corpuscles, chiefly in degree.

Cancer (carcinoma) varies greatly in its effects upon the blood. In all except very severe, advanced cases the red cells are but little diminished, but the individual cells are always below par; they are smaller and paler than normal, especially in the cachectic stages. When high counts occur there is always a concentration of the blood to account for it. Deformities and degenerative changes are common in bad cases, but never reach the extreme condition found in anæmia. Nucleated red corpuscles of all varieties are the rule. They are mostly normoblasts with few megaloblasts and microblasts.

Changes in the white cells depend upon the character of the growth. Hard, slow-growing cancers frequently show normal blood but soft rapid growing cancers regularly show an increase of leucocytes. The more malignant the growth the greater the leucocytosis. It is often said that there is no digestive leucocytosis in cancer of the stomach, but this is not true especially where metastasis exists.

Sarcoma. The effects of sarcoma is similar to cancer but worse. The effect upon the red cells is very pronounced; hæmoglobin averages about 50 per cent, and deformed, undersized and nucleated red corpuscles are regularly present in cachectic cases, but in small, slow-growing tumors the blood may be normal.

Leucocytosis is more constant and of greater degree in sarcoma than carcinoma, but the percentage of adult cells is of often not so great. Eosinophiles and myelocytes are generally increased, and especially so in bone metastasis.

An increasing leucocytosis in malignant disease points to a rapidly growing tumor or metastasis. When, after removal of the tumor, leucocytosis reappears we may look for an early recurrence of the growth.*

*The preparation of this paper has been greatly facilitated by reference to the very excellent work, *Clinical Examination of the Blood*, published by Wm. Wood & Co., New York, which has recently appeared from the pen of Dr. Richard C. Cabot. He has given us in convenient form the body of facts from hæmatological literature, largely foreign, thereby rendering English students an immense service.

XLII. Formaldehyde in carbuncles. By A. S. Annis, M. D., Rochester, N. H.—*Case.* Mr. R., farmer, æt. forty years; came to my office with a well developed carbuncle on the left posterior side of the neck. It had been in full blast one week, discharging freely from its numerous openings, some of which had merged into one another. The pain was intense and the destruction of tissue rapid. I cleansed with bichloride 1:2000 and dressed with iodoform and gauze. The next day there was no improvement beyond what common cleanliness might have induced. I then determined to do better if possible. So preparing a solution of formalin 1:2000, I thoroughly irrigated the entire inner surface of the slough, which was one and one-half inches in diameter, with the formalin solution. The drainage from this was so free that I had no fear of hardening in the tissues with the solution. About one inch from the outer edge of this carbuncle was another one of about one inch in diameter, with its numerous heads indicating the formation of pus, five or six of which were opened on various parts of the elevation, and the pus that came freely was removed. Formalin solution 1:3000 was freely injected through these apertures with an hypodermic needle, care being taken to extend the point of the needle well to outer edges of the elevation, and wherever there was any hyperæmia. The common iodoform gauze was used for dressing, but no packing beyond what was required to barely keep the edges of the tissues apart. When the patient returned the next day one felt safe in saying that a victory had been won. No increase in pus, decreased hyperæmia across the elevation and about the edges, and much less pain. For four consecutive days irrigation was carried on with a 1:4000 solution and the recovery was uneventful and rapid. Since then I have had great faith in formalin or formaldehyde, using it in abscesses, small septic wounds and the like and invariably with the best results for the last two years. So I think that I have tried this long enough to be sure that it will act along certain lines as a safe and reliable germicide. As for internal remedies I gave silicea 6x every three hours, but do not believe that it did all the work. The recovery was too rapid for that alone.

Editorial.

MEDICINE AND SURGERY IN THE TREATMENT OF CANCER.—An excellent illustration of the way to hold the clinical balance with justice to all parties concerned will be found in the following remarks of Dr. George F. Shears, made at the recent meeting of the American Institute:

Upon every occasion when the subject of cancer is before this body for discussion, the members seem to fall readily into two groups, physicians on the one hand and surgeons on the other; and the surgeon is supposed to do nothing but operate in the treatment of cancer, and the physician to do nothing but prescribe internal remedies. If we accept the cause of cancer as laid down by the Chairman of this section, and I am inclined to do so, there are two elements present whenever a cancer appears: *first*, an inability to combat disease, a suspension or diminution of the normal physiological resistance in the tissues; and *second*, a local irritation, infection or degeneration of tissue. Consequently there are two indications to be met; (1), the removal of the morbid product, the infected and infecting tissue; and (2), the overcoming of the weakness of the organism. In the treatment of these cases I strive to meet both conditions. First I remove all that will affect, or infect the surrounding tissue, but I do not stop there. I think we stop too soon; we do only one half of the work when we simply remove the infected tissue and fail to remove the inherent tendency, or to build up the patient.

If we will be both physicians and surgeons the possibility of curing cancer will be greatly improved. Cancer may be cured by remedies alone, at least there seem to be a few well authenticated cases on record; cancer has been cured by surgical treatment alone, that is, in some cases it has never returned after operative measures; but I believe that a larger number of cases will be cured by a judicious combination of both medical and surgical measures.

I believe the homœopathic remedy is of inestimable value, but its work is not the removal of morbid products, it is the correcting of the tendency toward disease. It is as unfair to expect the remedy to remove the morbid growth, or to correct the general condition of the patient

when the infecting mass remains, as it would be to expect a remedy to open an abscess or to prevent septic infection where pus cavities are allowed to remain unopened. The physician who refuses the early aid of surgery is an enemy to homœopathy, for he discredits the value of his remedy by asking impossibilities of it; and the surgeon whose mental vision is bounded by the local disease is a detriment to homœopathy, for he fails to obtain for it all the credit it deserves. Be both physicians and surgeons in the treatment of uterine cancer, as in all other forms of cancer, and you will obtain better results.

TWO HUNDRED HOSPITAL PATIENTS CURED IN A DAY.—Whether Chicago is in Cook county or the opposite, we have a county hospital that is and always has been something extraordinary. The most fabulous stories have been told of its fittings, its luxuries, its capacity, its post-mortem resources, and its professional and political management. Its career has been as full of crises as old Sydenham's calendar the last of which has suggested certain editorial remarks contained in the *Daily Tribune* of August 5 :

Tuesday morning there were over 800 patients at the County Hospital. Tuesday night there only 600. Twenty-five per cent of the inmates were discharged cured in one day. Were this left unexplained it would give the public a high impression of the medical skill of the hospital physicians. But when explained it puts the doctors and the hospital authorities in a rather bad light.

For these individuals, who were bundled out of the hospital unceremoniously Tuesday, had been in perfect health for a long time, and ought to have been discharged months or years ago. Fifty of the discharged patients were admitted in 1893 and twenty as far back as 1890. They were cured of their ailments—if they ever had any—long ago, but they have kept on living at the hospital so as to get food and lodging without work. Some of these men who have been living off the county have money or rich relatives. One man, who has been an inmate for six years, owns a block of buildings.

Of course, it has been the fault of those in charge of the institution that these leeches have been permitted to bleed the county. If a physician is competent he is able to tell the difference between a sick man and one who is

shamming sickness. He knows when a patient is able to leave, and it is his duty to report that fact.

There have been cases, no doubt, where the doctors have done that, and yet the patients, though well, had been allowed to remain and live off the county. When that has happened the hospital authorities have been at fault. The man who should have been turned out has had friends with influence who have been able to keep him in.

If the plucky Warden, who is neither reckless nor impetuous, has emptied out the baby with the bath nobody need complain. But what of the clinical dummies who have been living like a weevil in a biscuit, and who have furnished the stock material for any number of lectures on the diagnosis and treatment of disease! Will the brave and suffering 200 seek the shelter and cheer of the smaller charities, or will they turn up in the mushroom medical schools as lay figures that have already had a large experience in the clinics?

Our sympathies are with the staff of physicians and surgeons whose heroic shortcomings apparently prevented their recognizing that one in every four of almost a thousand patients was shamming it, and was a real malingerer. In these days such failures will not bear discussion, nor are they frequent, but they do occasion deep regret.

We also feel for the students who have sat under such brilliant teaching, and for those beginners who are likely to fall into the same sham-trap. For it is quite possible that the kind officer of that hospital who has already shown such superior diagnostic ability may decide that another hundred or two of these voluntary cripples should also travel for their health. In which case the boasted attractions of the so-called "clinical centre" would "scatter like a comet's bowels."

FOREIGN CORRESPONDENCE.

LONDON, July 19, 1897.

Mr. Editor:—It is something of a task to do one's ten or twelve hours of hospital work this hot weather when almost everybody else, now that the Jubilee and Henley are past, is hurrying away either to the sea, to their country seat, or poking their noses into all the interesting places with which, to an American, London is so full. If one leaves Vienna, that lazily comfortable, coffee-house city, which seems to have been built and maintained for the convenience of soldiers and surgeons, with great reluctance, I shall quit London with infinitely greater regret.

Little wonder that Vienna has been and still is the Mecca of nose and throat specialists, whether the work sought be theoretical or practical; but strangely enough the abundant clinical material and the consequent lack of necessity for systematic methods, determines the one feature that renders their work all but ideal. If to-day, in the Vienna nose and throat world, one thing more than another rivals the anatomical and theoretical courses, it is the practical work, and especially in that very difficult and hitherto undeveloped branch, the accessory cavities, and in which Hajek—whose ideal courses are given in English—admittedly ranks first. Yet we must not forget that the solid foundation and immense progress of the Vienna specialists dates from the publication of Zuchercamdall's incomparable anatomy.

Many new ideas have been given to the profession lately, among them being Réthi's use of electrolysis in the treatment of rhinitis, and the localization by Fleis, I believe, of Berlin, of motor and sensory turbinated areas, irritation of which, he declares, after considerable observation and experience, comes as definite reflexes in all parts of the body as corresponding cortical irritation. The conservative men are as loth to wholly accept it as they are to declare for intubation. Chiari, notwithstanding his wealth and fame, each day of his six weeks' course did his two hours of clinical attendance and into which, through great good fortune, I obtained a place, men having waited months for a place, only to be disappointed I am told.

Each morning at the pathological institute one sees the gross pathology during the well conducted "posts," with a later microscopical study in the laboratory under Stoerck, with whom I did a course, and the technical perfection of whose methods were a revelation.

Many are the extravagant tales one hears of the immense anatomical and pathological knowledge possessed by "The Dieners"—our Tonys and Lew Codys—some of whom have assisted at the "posts" for the last twenty years; but really one morning there was trundled in a case diagnosed by a not unknown specialist as brain tumor, when one of these disreputable looking old chaps, after passing his hand over the

skull said, "that 'stiff's' got no tumor, he's had a hæmorrhage," and the subsequent "post" proved his statement to be true.

Frau Gale, whose anæsthetic larynx is known the world over, laryngologically speaking, still waddles from one Herr Doctor to another, religiously late, ever fertile in plausible excuses, but nevertheless welcome. In Vienna tonsils and post-nasal growths are, I may say, almost never removed under anæsthesia, the argument being that it is cheaper, freer from possible laryngeal clots and unpleasant sequelæ, and quicker for operator and patient. But it certainly seems harsh, for which reason and that it assures more thorough removal the English specialists almost invariably administer an anæsthetic, using at the Golden Square Hospital chloroform and at the Central Hospital gas. At the former hospital—founded by Morrel Mackenzie, which has proven so inadequate that it is soon to be succeeded by a much larger one now in process of building—one never sees less than half a dozen operations each morning, exclusive of those done during clinic hours; and at the latter hospital, too, a nose and throat hospital exclusively, founded by Lenox Browne, one sees upon the days of Dr. Dundas Grants' attendance frequently fifty new cases. In addition to this work I have been attending Dr. Dudly Wright's clinic at the London Homœopathic Hospital in Great Ormond St., and I am pleased to write you that this hospital is as near an ideal one as I have seen since leaving home.

Many goitres are operated here and with good results. Thanks to the courtesy of the incoming President, I very much enjoyed the afternoon session and evening banquet of the British Laryngological and Rhinological Association, which was held here last week, and which was attended by many well known men from Her Majesty's Kingdom. I must tell you that I passed through Meissen on my way to London.

Trusting you are well, and that I may have the pleasure of being present at the opening exercises of the Old Hahnemann for the coming winter, permit me to remain, Sincerely yours,

ORRIN LEROY SMITH.

PARIS, FRANCE, July 25, 1897.

My dear Dr. Ludlam :—To continue with my medical wanderings of which I wrote last month. I next visited Leipsic and the clinic of Prof. Sattler, who was called from the University of Prague after the death of Prof Coccius. The operation for cataract does not vary much, and yet each man has his own technique, method of bandaging, etc. Sattler, like many others, does the simple operation without iridectomy when possible, and has his patients carried carefully to bed, whereas von Hippel allows them to walk and does not insist upon their going to bed. In general, so far, it seems to me that all the care is given to the preoperative period and comparatively little attention paid to the after-treatment. For detachment of the retina I saw the old method of in-

jecting iodine tried and also scleral puncture, but I did not stay to see results in either case. I fear, however, that they will be like most of such operations, of little avail.

In Leipsic I visited the editor of *Die Zeitschrift für Homœopathie*, and also the monument to Samuel Hahnemann in a public park, erected by his grateful students and friends. The monument is simple but elegant, and the enclosure filled with roses and "live-forever," a fitting if unconscious symbolism of his greatness. In Dresden I was graciously received by Dr. Alex. Villiers, but because of time could not accept all the attention he offered. I found from him as well as others how much more separate homœopathy is, over here, not only as a school, but the practitioners stand by homœopathy to the letter, and what cannot be cured by the use of internal remedies is turned over to a surgeon or specialist—the two, surgeon and homœopathist, are not represented by the same man.

In Prague I found in the place of Sattler, Prof. Czermack, who nine years ago was assistant to Fuchs in Vienna, a man with whom I had studied. The most interesting case I saw in his clinic was the transplantation of the cornea of a rabbit, and at the end of six weeks the results were so far successful. Vienna, as a medical centre, is too well-known to need a description. I visited my old haunts and found, almost without exception, the same men. Politzer, Gruber and Urbanstitsch in ear work, Chiori and Störck for throat work and Fuchs on the eye.

Fuchs endeavors to take out the capsule with forceps before removing the lens, instead of simply tearing it, and thus lessens the chance of secondary. His methods are simple. He uses no speculum, depending upon his assistant for holding the lids and thus removes the danger of "squeezing."

We had a few days' visit with Dr. Orrin L. Smith, meeting him at the Riedhof. He has been working very hard, and is making the most of every minute. He is now in London where we shall meet again.

Among the great men missing in Vienna was Billroth, whose tomb near Beethoven and Schubert, in the Central Friedhof, I visited. I also attended an interesting lecture and clinic of Kraft-Ebbing, and saw a quiet, painstaking studious man, entirely unlike the picture I had imagined from what I read in recent journal articles concerning him.

The interesting side trips to Salzburg, where we saw the former residence (A. D. 1541) of the man whom good old Dr. Small used to call Theophrastus Bombastus Paracelsus, Königsee, Chiemsee, etc., I cannot describe, but they are intensely enjoyable. Munich is as fine as ever, artistically, socially and medically.

You would hardly look for much in modern ophthalmology in old, old Nuremberg, and yet in the clinic of von Forster I saw everything up to date and on a par with the new and greater capitals.

As I am still interested in other branches of medicine I attended what might be termed a throat clinic, otherwise the opening night of the Bayreuth Festival, hearing Parsival in its only home and as instituted by its master, Richard Wagner, who now sleeps in the beautiful garden at Wahnfried.

I had hoped to see Roentgen at Wurzburg, going there on that account, but as the French say he was not "visible."

At Heidelberg, Prof. Leber occupies the chair formerly held by Becker, but the same good work is to be seen.

After so much of travel and study, for fear of "mental indigestion," we took a two days' "cure" at Baden-Baden, a most delightful place to be sent when one is a semi-invalid and of the virtues of the water and the delights of a bath (too much unknown in Europe) I can testify.

With a stop at Strassburg and a day with Bernheim in Nancy, of whom our good friend Dr. Crawford has told you already, we are now in Paris for a fortnight's work.

Hoping to let you hear again from London

I am yours as ever,

C. GURNEE FELLOWS.

IS HYSTERIA A CLINICAL ENTITY?

CITY OF MEXICO, July 20, 1897.

Editor of the Clinique:—Kindly tell us if in your judgment hysteria should be considered and treated as a distinct disease, or if it is only a nervous condition that may attach itself to other affections, and so make them more serious and complicated than they would otherwise be? Should we hold that it is not a disease because there is no lesion that is characteristic of it? And may we not recognize a hysterical as well as any other diathesis? My own opinion is that we may, but the argument is not clear to my mind. In truth, the theories of its pathology are very confusing, and the more I read the less I know about this matter.

T. Y.

In one form or another these inquiries have often been made and as variously answered. If hysteria is a fixed clinical entity, as we believe it to be, it must have its own characteristic symptoms, its predisposing and exciting causes, its differential diagnosis, prognosis and treatment. And it certainly has all of these in its morbid train. The difficulty is in recognizing its clinical peculiarities and in estimating them at their proper value; for they are sly and elusive, or noisy and threatening, and calculated to deceive the very elect. The prognosis is almost always favorable, and the treatment is decidedly characteristic.

The fact that hysteria does not always occur in an idiopathic, or uncomplicated form, is equally true of pneumonia, typhoid fever and many other diseases. They have their individual traits but their symptoms are often blended and incidentally confounded with something of a very different nature. In neurotic subjects, men, women and children, the

hysterical epiphenomena are deceptive and misleading, but they are quite as real as anything morbid with which we have to do. The thing is to detect them and to subtract them from the more serious and underlying symptoms in the case.

It is not very strange that in hysteria there is a lack of a proper causative lesion, genital or otherwise. For, if we except its traumatic form, there is no special lesion so far as we know at present in epilepsy. Neither is there in certain varieties of mania, nor in Graves' disease, nor in tetanus. There was a time when the so-called puerperal fever had a dozen different lesions, more or less; but now that its pathology is understood we find that it has no tangible and characteristic morbid anatomy.

That there is a hysteric constitution, or predisposition, is pretty well established. It may be inherited or acquired, and represents a bias that calls for treatment as certainly and as emphatically as any other disease tendency. If this fact were properly regarded there is no doubt that the preventive control of hysteria would be more general and much more thorough than it is at present.

CLINICAL CHIPS.—Cyanosis with a garlicky breath has been caused by poisoning from bismuth that has lain unchanged in a baby's stomach.——Weill insists that children can convey the whooping cough only during the premonitory stage, and not after the whoop begins.——Benedikt reports two radical cures of diabetes insipidus with ergot.——The cigarette and the tremulous handle-bar in cycling may seriously interfere with steadiness in the use of instruments in delicate operations.——As a local anæsthetic, Bellencoutre commends a solution of pure oil of guaiac one part and sterilized olive oil fifteen parts as much better than cocaine, and free from noxious effects.——Bar's method of dressing the umbilical cord is to apply a pair of hæmostatic forceps perpendicular to the stump, surround them with aseptic gauze and leave them for twenty-four to thirty-six hours, when they can be safely removed.——Tuberculous deposits, wherever found, form excellent culture material for pyogenic cocci; hence their proneness to the suppurative process.

Miscellaneous Items.

The excellent report on Diseases of the Eye and Ear presented to the midsummer meeting of the Clinical Society, page 405, merits a careful reading.——The Annual Catalogue of the Old Hahnemann is out and tells its own story.——Prof. Shears is also out, on a brief vacation; Prof. Arnulphy speaks for himself at page 389; Prof. Halphide, ditto, at page 423; Prof. Cobb is at home again; Prof. Vilas is in Alaska, but not as a gold-seeker; Profs. Fellows and Smith report in our Foreign Correspondence, page 434; Prof. Crawford is coastwise in Maine; and others of a hard working Faculty are on deck awaiting returns from the Dingley tariff.——Dr. Martha A. Bowerman, of this city, esteemed as an earnest and capable member of the profession, died of diabetic coma July 31, aged fifty-six.——Removals: Drs. H. N. Keener, from Nebraska City, Neb., to Mound City, Mo.; C. G. Dwight, from Milwaukee, to Wauwatosa, Wis.; A. H. Tevis, from Highlands, to 11 Idaho Street, Denver, Col.; T. W. Ashley, from River Falls, Wis., to Lawrence, Mich.; A. Cuvier Jones, from Colorado Springs, Col., to Tucson, Arizona. ——Dr. J. C. M. Chaffee was married June 14, to Miss Bessie Walsh, of Attica, Ind.——The great improvement in the large amphitheatre of the College is the admiration of everybody.——All the clinics are full to overflowing.—— The prospects for a big class the coming winter have not been so bright since 1876.——Prof. Halbert, chairman of the Section on Nervous Diseases, will present the report at the next meeting of the Clinical Society, August 28.—— Our scribe, who used to be a farmer's boy, says that since the bykes came the boulevard presents an agricultural anomaly, for there are more calves than cows on exhibition.